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Atty. Dkt. No. 047182-0145

THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Nikhil KORATKAR et al.
Title:	MINIATURIZED GAS SENSORS FEATURING ELECTRICAL BREAKDOWN IN THE VICINITY OF CARBON NANOTUBE TIPS
Appl. No.:	10/540,112
International Filing Date: 371(c) Date:	12/19/2003
Examiner:	Unassigned
Art Unit:	1753
Conf. No.:	1425

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.56

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith on Form PTO/SB/08 is a listing of documents known to Applicants in order to comply with Applicants' duty of disclosure pursuant to 37 CFR §1.56.

A copy of each non-patent document is being submitted to comply with the provisions of 37 CFR §1.97 and §1.98.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /G.K./

TIMING OF THE DISCLOSURE

The listed documents are being submitted in compliance with 37 CFR §1.97(b), before the mailing date of the first Office Action on the merits.

RELEVANCE OF EACH DOCUMENT

An English translation of the foreign-language document is not readily available. However, the absence of such translation does not relieve the PTO from its duty to consider the submitted foreign language document (37 CFR §1.98 and MPEP §609).

Applicants respectfully request that each listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

Although Applicant believes that no fee is required for this Request, the Commissioner is hereby authorized to charge any additional fees which may be required for this Request to Deposit Account No. 19-0741.

Respectfully submitted,

Date 12/18/06 By _____

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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Date Submitted: December 18, 2006

(use as many sheets as necessary)

Sheet 1 of 3

Complete if Known	
Application Number	10/540,112
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First Named Inventor	Nikhil KORATKAR
Art Unit	Unassigned
Examiner Name	Unassigned
Attorney Docket Number	047182-0145

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Documents	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[6]
	A1	Baughman et al., "Carbon Nanotubes-the Route Toward Applications," Science, August 2, 2002, 297, 787-792.	
	A2	Capone et al., "Gas Sensitivity Measurements on NO_2 Sensors Based on Copper (II) Tetrakis(n-butylaminocarbonyl)phthalocyanine LB Films," Langmuir, 1999, 15, 1748-1753.	
	A3	Chopra et al., "Development of RF Carbon NAnotube Resonant Circuit Sensors for Gas Remote Sensing Applications," 2002 IEEE MTT-S Digest, 639-642.	
	A4	Collins et al., "Extreme Oxygen Sensitivity of Electronic Properties of Carbon Nanotubes," Science, March 10, 2000, 287, 1801-1804.	
	A5	Currie et al., "Micromachined thin film solid state electrochemical CO_2, NO_2 and SO_2 gas sensors," Sensors and Actuators B, 1999, 59, 235-241.	
	A6	deJonge et al., "High brightness electron beam from a multi-walled carbon nanotube," Nature, November 28, 2002, 420, 393-395 and 461.	

Examiner Signature	/Gurpreet Kaur/	Date Considered	05/21/2010

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This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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	A7	DETECTORS Flame Ionization Detector – FID, date unknown, company brochure, 8 pages.	
	A8	Dresselhaus et al., "Carbon Nanotubes, Synthesis, Structure, Properties and Applications," 2001, 80, Table of Contents only.	
	A9	Drotar et al., "Reflection high-energy electron diffraction from carbon nanotubes," Physical Review B, 2001, 64, 125417-1 to 125417-6.	
	A10	Dume, Belle, "Nanotubes make miniature gas sensors," physicsweb, July 10, 2003, 2 pgs.	
	A11	Edgecombe et al., "Microscopy and computational modeling to elucidate the enhancement factor for field electron emitters," Journal of Microscopy, February 2001, 203(2), 188-194.	
	A12	Endres et al., "A capacitive CO_2 sensor system with suppression of the humidity interference," Sensors and Actuators B, 1999, 57, 83-87.	
	A13	Forbes et al., "Some comments on models for field enhancement," Ultramicroscopy, 2003, 95, 57-65.	
	A14	Keblinski et al., "Charge Distribution and Stability of Charged Carbon Nanotubes," Phys. Rev. Lett., December 2002, 89(25), 255503-1-255503-4.	
	A15	Kong et al., "Nanotube Molecular Wires as Chemical Sensors," Science, January 28, 2000, 287, 622-625.	
	A16	Koratkar, Nikhil, "Carbon Nanotubes as Ionization Detectors for Chemical Sensing," web page visited December 8, 2003, 2 pgs.	
	A17	Lee et al., "A new process for fabricating CO_2-sensing layers based on $BaTiO_3$ and additives," Sensors and Actuators B, 2000, 68, 293-299.	
	A18	Li et al., "Study of the self-sustaining discharge gas sensor with carbon nanotube cathode," Joint 15th IVMC and 48th IFES, July 7-11, 2002, 3 pgs.	
	A19	Lonergan et al., "Array-Based Vapor Sensing Using Chemically Sensitive, Carbon Black-Polymer Resistors," Chem. Mater. 1996, 8, 2298-2312.	
	A20	Mandelis et al., "Physics, chemistry and technology of solid state gas sensor devices," Wiley-Interscience, 1993 (table of contents).	

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PTO/SB/08 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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	A21	Matsubara et al., "A practical capacitive type CO_2 sensor using CeO_2/$BaCO_3$/CuO ceramics," Sensors and Actuators B, 2000, 65, 128-132.	
	A22	McConnell et al., "The Cytosensor Microphysiometer: Biological Applications of Silicon Technology, Science, September 25, 1992, 257, 1906-1912.	
	A23	Miasik et al., "Conducting Polymer Gas Sensors," J. Chem. Soc., Faraday Trans. 1, 1986, 82, 1117-1126.	
	A24	Modi et al., "Miniaturized gas ionization sensors using carbon nanotubes," Nature, July 10, 2003, 424, 171-174 and 2 page Supplementary Section.	
	A25	Ong et al., "A Wireless, Passive Carbon Nanotube-Based Gas Sensor," IEEE Sensors Journal, April 2002, 2(2), pp. 82-88.	
	A26	Peng et al., "Carbon Nanotube Chemical and Mechanical Sensors," Structural Health Monitoring, 2001, 1142-1149.	
	A27	Photoionization detector (PID) HNU, October 6, 1994, US EPA, 1-16.	
	A28	Pinghu et al., "Study of a new gas sensor based on electrical conductance of gases in a high electric field," Chinese Journal of Scientific Instrument, 19(3), 1998, 239-244.	
	A29	Shimizu et al., "Basic aspects and challenges of semiconductor gas sensors," MRS Bull., 24(6), 18-24, 1999.	
	A30	Takao et al., "High ammonia sensitive semiconductor gas sensors with double-layer structure and interface electrodes," J. Electrochem. Soc., 141, 1028-1034, 1994.	
	A31	Wei et al., "Lift-up growth of aligned carbon nanotube patterns," Applied Physics Letters, November 6, 2000, 77(19), 2985-2987.	
	A32	Zhang et al., "Study of Gas Sensor with Carbon Nanotube Film on the Substrate of Porous Silicon," Proc. 14th Intl. Vacuum Microelectron. Conf., august 13-16, 2001, 13-14.	
	A33	Zhang et al., "Substrate-site selective growth of aligned carbon nanotubes," Applied Physics Letters, December 4, 2000, 77(23), 3764-3766.	

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